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ON THE IDENTIFICATION OF SOME OF THE BIRDS MENTIONED BY ARISTOTLE.

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The determination of the genera and species of the birds mentioned by Aristotle has occupied the attention of many naturalists and classical writers. Of the earlier efforts in this direction, those of Gesner and Belon may be specially mentioned, while in later times this difficult work of identification has received careful attention from Billerbeck, Gloger, and Sundevall. As a result of the labours of these and other workers, both the genera and species of about ninety of Aristotle's birds are fairly well known, and of the remainder—about eighty in number—the genera only of about forty have been determined with more or less success. Among the birds whose identification has caused much controversy may be instanced those which are included, by modern naturalists, in the families *Cypselidæ* and *Hirundinidæ*, and various water-birds probably belonging to the families *Anatidæ*, *Laridæ*, and *Podicipedidæ*. The identification of some of these birds will be considered in this paper.

There are two important points to which attention may be drawn advantageously at this early stage of the inquiry. In the first place, Aristotle was in an especial degree what would now be called a comparative zoologist, and in many cases his descriptions of birds are meagre, and serve mainly to illustrate generalized statements made about their structure and modes of life.

Sometimes—as, for instance, in the ninth book of his 'History of Animals'—he gives descriptive accounts of various birds, but the best of these accounts is very incomplete. The data upon which the identification of Aristotle's birds must rest are therefore often insufficient. Secondly, some of the names—such as λάρος—used by Aristotle, probably indicated birds belonging to more than one species, or perhaps even genus, according to modern ideas of classification. Aristotle does employ a word (εἶδος) which can sometimes be fairly rendered by the modern word "species," and also a word (γένος) which may be represented occasionally by the word "genus," but is usually more nearly equivalent to one of the modern terms—class, order, and family. Synonymy of the Aristotelian and modern zoological names is therefore exceptional, as might be reasonably expected.

Let us first consider those birds referred to above as belonging to the families *Cypselidæ* and *Hirundinidæ*. Aristotle deals with them under the names *apous*, *cypsellos*, *drepanis*, and *chelidon* (abandoning, for convenience' sake, the use of the Greek characters). The following are the chief passages:—

"Also, there are weak-footed birds which, on this account, are called *apodes*. They have well-developed wings, and some birds nearly like them have well-developed wings but weak feet, as, for instance, *chelidon* and *drepanis*; for all these are similar in habits and wings, and nearly alike in appearance. The *apous* is seen during the whole season, but the *drepanis* when it rains in summer, for then it is both seen and caught, but is a rare bird on the whole." (Hist. Anim., book i. 1, 9.)

"And there are some which have neither their œsophagus nor crop wide, but a long stomach [or, perhaps, stomach and intestines], these being small birds, such as *chelidon* and the sparrow." (Ibid. ii. 12, 16.)

"But sometimes self-coloured birds, black or dark, such as the crow, sparrow, and *chelidones*, become white through seasonal changes, as, for instance, when the cold increases." (Ibid. iii. 10, 11.)

"Wild birds, as I have said, usually pair and hatch out young once a year, but *chelidon* and the blackbird hatch out young twice." (Ibid. v. 11, 1.)

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"The thrushes, like the *chelidones*, make their nests of mud." (Ibid. vi. 1, 3.)

"The *chelidon*, to a greater extent than carnivorous birds, nests twice a year." (Ibid. vi. 5.)

"Many birds hybernate and do not all depart for warm localities, as some say, but those which are near places such as those in which they are resident migrate thither, as, for instance, the kites and *chelidones;* those which are farther away from such places do not migrate, but hide themselves. For many *chelidones*, entirely stripped of feathers, have been seen in the valleys. . . . . Some of the wood-pigeons hybernate; others do not, but migrate with the *chelidones*." (Ibid. viii. 18.)

"On the whole, many other animals may be regarded as imitating man in their modes of life, and a precision of purpose may be seen more among the smaller than the larger animals, as, first of all among birds, the building of its nest by the *chelidon*. For it combines mud with straws in the same way, since it intimately mixes mud with straws, and, if mud is not available, the *chelidon*, having wetted itself, rolls with its wings in the dust. Besides, the *chelidon* uses straws just as men do, first placing the rough ones below, and making [its nest] proportional in size to its own bulk. Both [cock and hen] work hard to rear their young." (Ibid. ix. 8, 1.)

"We have before stated that the *apodes*, which some call *cypselloi*, are like the *chelidones;* for it is not easy to distinguish [the *apous*] from *chelidon*, except that it has its metatarsus rough [=hairy, or perhaps feathery]. These hatch out their young in deep receptacles moulded from mud, having an entrance of suitable size. They build their nests in a narrow place under rocks and caves, so that they avoid both wild animals and men." (Ibid. ix. 21, 1.)

"Both the wasps and the titmice, and also *chelidon* and the bee-eater, injure them [the bees] very much." (Ibid. ix. 27, 16.)

"Some birds hatch out imperfect and blind young ones, these birds being such as are prolific and not large, such as the crow, magpie, sparrow, and *chelidon*." ('Generation of Animals,' iv. 6.)

(The extracts given from Aristotle's 'History of Animals' have been translated from Schneider's edition, which is admitted to be the best text. The extract from Aristotle's 'Generation of Animals' has been translated from Didot's edition.)

The identification of the bird called *drepanis* has given rise to much difference of opinion. Gesner and Belon considered that it was the Sand-Martin, Gesner stating (Hist. Anim. lib. iii. de Avium natura, Zurich, 1555. Folio, p. 545) that *drepanis* seems to be no other bird than *riparia*, mentioned by Pliny, and called by some Germans "the little bird of the Rhine." In Billerbeck's table ('De Avibus ab Aristotele Plinioque commem.' 1806, 8vo) both the Sand-Martin and, apparently, the Alpine Swift are given under the name *drepanis*. Gloger was of opinion that the Common Swift, or the Alpine Swift, was meant, and Sundevall preferred to identify *drepanis* with the Alpine Swift.

Now, *drepane* means a sickle, and it is very probable that the name *drepanis* was given to the bird because the form of one of its parts was suggestive of that implement. The great difficulty is to decide to what part of the bird the name referred. Gloger and Sundevall considered that this part was the wing, the former stating, what is by no means certain, that the name could scarcely be given on account of the form of the claws ('Dissert. . . . de Avibus ab Aristotele commem.' 1830, 8vo), and the latter pointing out that the Alpine Swift (*Cypselus melba*) has the most sickle-shaped wings ('Die Thierarten des Aristoteles,' Stockholm, 1863, 8vo). It seems most likely, however, that the Alpine Swift, with its exceedingly well-developed wings, short feet, and feathered metatarsus, should be included under the name *apous*, together with the Common Swift (*C. apus*). That *C. melba* is not *drepanis* appears to be consistent with Aristotle's statement that the *drepanis* is seen during rainy weather in summer, and is a rare bird on the whole; for *C. melba* is common in Greece during the breeding season, according to Lindermeyer, and is sold in large numbers in the Grecian markets. Modern Greeks also give the name *drepanis* to a Martin (according to Contopoulos), and, I believe, the one to which the name is specially applied is the Sand-Martin. The long and curved first claw of this Martin might readily suggest the name *drepanis* to anyone who examined one of these birds. Theodore of Gaza, at any rate, called the Sand-Martin *falcula*, a word signifying a small sickle, and, by metonymy, a claw, in which sense Pliny also uses the word. Further, the Sand-Martin is not common in Greece, as there are few rivers there suitable to its mode of life. It may also be stated that it would be more likely to be seen after heavy summer rains than at any other time, and that its stay in Greece is comparatively short, Von der Mühle saying that the Sand-Martin migrates south from Greece very early in the autumn, even earlier than the House-Martin. All these facts tend to show that *drepanis* was the Sand-Martin (*Cotile riparia*). At one time it seemed to me that the Crag-Martin (*C. rupestris*) was the bird meant, but, although this is a rather rare bird in Greece, it has been established that it is resident there, according to Lindermeyer, Seebohm, and others. Aristotle's *drepanis* does not appear to have been resident. Besides, the Crag-Martin seems to be called *chelidóni* by some modern Greeks, according to Dr. Erhard's 'Fauna der Cycladen.'

A consideration of the extracts previously given from Aristotle, and of the structure and modes of life of the *Cypselidæ* and *Hirundinidæ* of Greece, would seem to show that the Swifts (*Cypselus apus* and *C. melba*) should be included under the ancient name *apous*, and that the Swallow (*Hirundo rustica*), at least, should be included under *chelidon*. Whether the House-Martin and the Crag-Martin, if that bird were known separately by Aristotle, should also be included under *chelidon*, is difficult to decide. The inquiry, as far as the Crag-Martin is concerned, may best be abandoned, the data being wholly insufficient. With regard to the House-Martin, Aristotle must have known this bird well, as it is an exceedingly common summer resident in Greece. When the extracts from Aristotle are considered, however, some are found to be not inconsistent with the view that *chelidon* included the House-Martin; but, on the other hand, there is one important passage which tends to show that the House-Martin was regarded by Aristotle as one of the *apodes*. This passage is given in his Hist. Anim. ix. 21, 1, which states definitely that the *apodes* differ from *chelidon* in having a rough, hairy, or feathered metatarsus (κνήμη δασεῖα), a statement clearly applicable to the House-Martin, as Gloger said. Then follows the nesting description, which appears to be intended to refer to the *apodes*, but applies emphatically to the House-Martin of

Greece; for *C. urbica* is (according to Dresser's 'Birds of Europe,' vol. iii.) the Rock-Martin *par excellence* of Greece, building its mud nests in the caves in which Greece and Western Asia Minor abound. Again, there is a highly interesting passage in book viii. chapter 60, of Athenæus' 'Deipnosophistai,' where the Rhodian method of collecting or begging, called "chelidonizing," is described, it being stated that *chelidon* has a white belly and black back, a description which does not accord well with the actual colouring of *Chelidon urbica.* On the whole, it would appear that the House-Martin of Greece and Asia Minor is one of Aristotle's *apodes*, and, adopting this view, the difficulties of the nesting description in Hist. Anim. ix. 21, 1, disappear to some extent.

In the same passage (Hist. Anim. ix. 21, 1), Aristotle says that the *apodes* are called *cypselloi* by some, and Pliny, as is so often the case, copies him. Some writers, however, neglecting Aristotle's distinct statement, say that *cypsellos* was the Sand-Martin, and Sundevall states that it is unlikely that *cypsellos* was the same as *apous*, but that two distinct kinds of birds were known in Greece under these names, but that Aristotle confounded them in his description. It seems to be more satisfactory to take Aristotle's statement as it stands, just as Gesner and Belon did, and to regard *cypselloi* as a name applied by some ancient Greeks to the *apodes.*

The water-birds which will be discussed in this paper are referred to by Aristotle under the names *cycnos*, *chen*, *micros chen*, *chenalopex*, *aix*, *netta*, *boscas*, *penelops*, *phalaris*, *colymbis*, *laros*, and *aithyia*, abandoning the use of the Greek characters as before. The following are the chief passages containing references to these birds:—

"There are animals which obtain their food and pass their time in water, yet do not take in water but breathe air, and breed out of the water. . . . Some of these are winged, as, for instance, *aithyia* and *colymbis.*" (Hist. Anim. i. 1, 6.)

"Also animals may be retiring and cautious, like the *chen.*" (Ibid. i. 1, 15.)

"Not all birds have cæcal appendages of the intestine, but most birds have them, as, for instance, *netta*, *chen*, and *cycnos.*" (Ibid. ii. 12, 17.)

"The *aithyia* and the *laroi* hatch out their young, two or three in number, among the rocks by the sea, but the *laros* does so in summer, and the *aithyia* in early spring just after the equinox; they incubate like other birds, and neither of them hybernates." (Ibid. v. 8, 4.)

"The eagle sits about thirty days, and for other large birds this is the period of incubation, as, for instance, in the case of the *chen* and bustard." (Ibid. vi. 6, 2.)

"Only the female *chenes* incubate, and, once they commence to do so, sit continuously." (Ibid. vi. 8, 1.)

"Also the stork and *laros*, and the *laros* is ash-coloured, ... and the crows feed upon animals cast ashore, for they are omnivorous. Also the *white laros*, storm petrel, *aithyia*, and thick-knee." (Ibid. viii. 5, 7.)

"The heavier web-footed birds live in the neighbourhood of rivers and lakes, as, for instance, *cycnos*, *netta*, *phalaris*, *colymbis*, and also *boscas*, which is like *netta*, but smaller; and the cormorant. . . . . Also, the *great chen*, the *small chen*, which is gregarious, the *chenalopex*, *aix*, and *penelops*." (Ibid. viii. 5, 8.)

"The crane, *cycnos*, pelican, and *small chena* are gregarious birds." (Ibid. viii. 14, 6.)

"The vulture and *cycnos* fight with the eagle, and the *cycnos* is often victorious; the *cycnoi*, among birds, are especially disposed to devour [? fight with] one another." (Ibid. ix. 2, 9.)

"The *cycnoi* are capable of singing, and sing especially towards the end of life." (Ibid. ix. 13, 2.)

"The web-footed birds, and those which have their feet divided but flattened, so that they are in the same class as the web-footed birds, have their necks long but their legs short for swimming, ... and of necessity, on this account, some swimming birds are simply web-footed, and others have their toes separated one from another, but there is attached to each of them something continuous throughout the toe, like an oar." ('Parts of Animals,' iv. 12.)

The species of Swan included under Aristotle's *cycnos* are probably *Cygnus olor* and *C. musicus*, the former of which is resident in Greece, and breeds on Lake Copais, according to Dr. Krüper, and the latter is a winter visitant. The word ἀλληλοφάγοι (devouring one another) in the Greek text is difficult to understand. Sundevall prefers the reading ἀλληλοφίλοι (fond of one another), but ἀλληλομάχοι (fighting one another), which has also been proposed, would be the best reading, for the young Swans fight furiously during the mating season. Athenæus, quoting Aristotle in the 'Deipnosophistai,' ix. 49, says that Swans are disposed to fight, and that they kill one another. The remarkable passage on the Swan in Hist. Anim. ix. 13, 2, has not been given above in full, but it recalls forcibly Portia's pretty speech, delivered when Bassanio is about to make his fateful choice of the caskets.

The Goose (*chen*) referred to by Aristotle appears to have been *Anser cinereus*, and perhaps *A. segetum*, which occurs in company with *A. cinereus* in Greece and Asia Minor. *A. albifrons*, which is about five inches shorter than *A. cinereus*, and four shorter than *A. segetum*, may be Aristotle's small *chen*. It is not uncommon in Greece during cold winters. Belon and Billerbeck regarded the *chen* as the Domestic Goose, and the small *chen* as the Wild Goose; and Sundevall identified the *chen* mainly with the Domestic Goose, and the small *chen* as *A. albifrons*. It may be mentioned that Aristophanes, with his usual charming drollery, assigns to the *chenes* the genial task of using their feet like spades in working the mud for the walls of Nephelococcugia, or Cloud-cuckoo City.

Aristotle's meagre references to *chenalopex* (the Fox-goose) can, fortunately, be supplemented by a passage in Herodotus (book ii. c. 72), which states that the *lepidotus* and eel of the Nile, and also the *chenalopex*, among birds, are sacred; and by a passage in Athenæus, ix. 52, referring to a kind of *boscades* larger than *netta*, but smaller than *chenalopex*. Pliny also says that *chenalopex* belongs to the family of Geese, and Ælian states that it has the appearance of a Goose, but is smaller and bolder. There is no doubt that *chenalopex* was the Egyptian Goose (*Chenalopex ægyptiacus*), which was emblematic of Seb, the father of Osiris, according to Rawlinson. The bird's name (*chenalopex*), and its corresponding Latin name (*vulpanser*), are appropriate to the Egyptian Goose, which, Rawlinson says, displays great courage and cunning in protecting its young; Ælian also says that it can be compared to the Fox in cunning. Schneider suggests that *Anas tadorna*, Linn., the Burrow-duck or Sheldrake, may have also been included under the name *chenalopex*, on account of its breeding in hollows in the earth, like the Fox.

Much uncertainty exists respecting the bird called *aix* by Aristotle. Gaza and Belon translate the word as *capella*, or Lapwing (*Vanellus cristatus*); Billerbeck suggested that *Anas crecca* or *Scolopax gallinago* was meant, and Sundevall thought that *aix* was one of the small Geese; while Schneider, although translating *aix* as *capella*, says that Camus rightly advises us not to regard the bird as the Lapwing. Belon, describing *le vanneau*, or the Lapwing ('L'hist. de la nat. des Oyseaux, Paris, 1585), says that in his opinion this bird was called *aix* by Aristotle because, when screaming, it seemed to make a noise like a Goat, which says "aex aex." However this may be, the modern Greek for the Lapwing has no resemblance to *aix*, according to Contopoulos; besides, Aristotle's *aix* was without doubt a water-bird, and may have been one which darted or flew rapidly (*aisso*, *aixo*, to dart, to move with a rapid shooting motion), such as the Pintail Duck (*Dafila acuta*), which is tolerably common in Greece and Turkey, according to Lord Lilford and Lindermeyer. The data are, however, insufficient for the purpose of identifying Aristotle's *aix* with any reasonable chance of success.

The Mallard, or Wild Duck (*Anas boscas*), which is very common in Greece, Turkey, and Asia Minor, is the *netta* of Aristotle. The male is larger than the female, and its plumage is more brightly coloured, according to Athenæus, ix. 52; and Ælian says that the young *nettai* take to the water immediately after they are hatched.

In determining the species corresponding to *boscas*, Athenæus may be consulted with advantage. He states (ix. 52) that of the birds called *boscades*, the male is marked all over with lines, is less than *netta*, and has a short beak which is disproportionately small compared with the size of the bird; also that there is another species of *boscades*, larger than *netta*, but smaller than *chenalopex*; and that the birds called *phascades* are a little larger than the Little Grebe, but resemble the *nettai* in other respects. From this it would seem that several species were included under the name *boscas*, and that the Wigeon (*Mareca penelope*) and Common Teal (*Querquedula crecca*) may have been two of them. The beak of the Wigeon is comparatively very short, and the back and scapulars of this bird are finely vermiculated, especially in winter. Again, the Common Teal has the back vermiculated in a striking manner, and its beak, although longer than that of the Wigeon compared with the size of the bird, is rather short. Both these birds are abundant in parts of Greece in winter, according to Lord Lilford. Sundevall seems to identify the larger of Athenæus' *boscades* with the Sheldrake, the smaller one with the Wigeon, and the *phascas* with the Common Teal. Belon, on the other hand, gives *la sarcelle*, or the Teal, as the equivalent of *boscas* and *phascas*, and Billerbeck suggests that *boscas* was the Wild Duck.

The identification of the bird named *penelops* is much more difficult, the data being so scanty. Aristotle merely mentions it among the heavier water-birds, while Aristophanes, who refers to it at least twice, gives us no further information. I have not found anything in Athenæus and Ælian. Ion, however, applies the epithet "purple- or crimson-streaked" to a bird called by him *penelops*. Alcæus says that it has a variegated neck and long wings, and Ibycus that it is many-coloured, and has a neck of glancing or changeful hue. These statements of Ion, Alcæus, and Ibycus I have had no opportunity of checking, but they are given on the authority of Schneider, who was a very reliable scholar. Again, Stephanus ('Thesaurus Græcæ Linguæ') gives a scholium on Aristophanes, which states that the *penelops* is like *netta*, but of the size of a Dove (*peristera*). Pliny speaks of certain birds, called *penelops*, being found in a lake in Africa, from which a certain river Crathis flowed towards the Atlantic (Hist. Nat. xxxvii. 11). Assuming that these notices refer to the same kind of bird—and such assumption is a bold one—it would appear that *penelops* was a lake or river bird with long wings, and variegated plumage in which purple or crimson was conspicuous, the neck being of striking brilliancy or variety of colour; in addition, there is the above-mentioned scholium, the value of which is uncertain. I know of no duck-like bird likely to have been known by Aristotle which answers reasonably well to this description. The Common Teal, with its moderately long wings, green, buff, and deep chestnut head and neck, and green, purple, and other colours of the wings, seems to approach nearest.

According to Aristotle, *phalaris* is one of the heavier web-footed birds living in the neighbourhood of lakes and rivers. Athenæus says it is rounder than *ouria*, and is ash-coloured below and somewhat black above. It seems probable that *phalaris* was the Coot (*Fulica atra*), as stated by Billerbeck, Schneider, and others. The Coot, it is true, has lobated feet, but would properly come under Aristotle's web-footed division of birds, as is clear from the passage previously quoted from Aristotle's 'Parts of Animals,' iv. 12. Belon, however, identified *phalaris* with *la piette*, by which he probably meant the Smew (*Mergus albellus*), and Sundevall follows him. The Smew is tolerably common in Greece in winter, but the colour of its plumage does not answer at all well with Athenæus' description of *phalaris*.

Colymbis—so called, as Athenæus says, from *colymbao*, to dive—has been identified by Gesner, Belon, Gaza, Schneider, and many others as the Latin *urinatrix*, or diver. Billerbeck appears to be undecided between the Pochard Duck and Goosander, and Sundevall argues strongly in favour of regarding *colymbis* as a species of Grebe. Sundevall's opinion appears to be correct, for Athenæus says that the little *colymbis*, which is the least of all aquatic birds, is of a dirty black colour, has a sharp beak, and dives much. This little bird is no doubt the Little Grebe, and it seems reasonable to conclude that *colymbis*, which Aristotle mentions among the heavier water-birds, was a larger Grebe, perhaps *Podicipes cristatus*, a bird very common in Greece and Turkey. The lobated feet of *P. cristatus* need present no difficulty in adopting this view, as is shown by Aristotle's 'Parts of Animals,' iv. 12, previously quoted. The Grebe is called *colymbos* by modern Greeks, according to Contopoulos. The *colymbis* might have included the Pochard Duck, which is fairly common in Greece and Turkey, but the passage in Athenæus on the little *colymbis* does not favour this suggestion. There appears to be far less reason for considering *colymbis* as a diver (*colymbus*), as understood by modern ornithologists, or as the Goosander, for none of these birds occurs in Greece except as a rare visitant, and even then only on the coasts, as a rule. Aristophanes does not say much about *colymbis*, but in the "Birds" Euelpides asks, "Who led the owl towards Athens?" and his fellow-villain of the play, Pisthetærus, mentions *colymbis* as one of the birds which did so. It is scarcely likely that Aristophanes would try to introduce into this part of the comedy a bird probably unknown to the Athenian audience.

Aristotle's *laros* included more than one species of birds, and perhaps more than one genus. His descriptions point clearly to the Gulls, and possibly the Terns, of which collectively there are at least eight species common in Grecian waters. Belon seems to identify Aristotle's ash-coloured *laros* with the Common Gull (*Larus canus*), but Sundevall suggests that Aristotle used the epithets "ash-coloured" and "white" for young and adult Gulls respectively, the plumage of which differs, as is well known, according to age. It is scarcely possible to decide with any degree of satisfaction which birds were intended to be meant by the epithets, but the name *laros* may be fairly regarded as referring in particular to *L. canus*, and perhaps the Herring-Gull (*L. argentatus*), the Adriatic Gull (*L. melanocephalus*), and others. Modern Greeks still call the Sea-gulls *glaroi*.

The identification of Aristotle's *aithyia* has caused much difficulty and some confusion, arising chiefly from the fact that Pliny describes, under the name *mergus*, a bird clearly intended to be Aristotle's *aithyia*, but represented by Pliny as nesting in trees, whereas *aithyia* nested among the rocks near the sea. Gesner gives *aithyia* as *mergus*, and repeats Pliny's statement that it nested in trees; while Belon similarly calls *aithyia mergus* or *plongeon de mer*. Gesner seems to have been thinking of the Goosander, and Belon of the divers. Amidst this confusion it is best to consider carefully what Aristotle says of the *aithyia*; it will then appear, as Sundevall suggests, that Aristotle's *aithyia* was probably none other than some species of Gull which nests among the rocks near the coast early in spring. *Larus leucophæus*, the Yellow-legged Herring-Gull, which is very common in Greece, seems to answer well to this description. This bird nests on the rocks near the coast in some parts of Greece, and, according to Seebohm, who visited its breeding-places on an island east of Cephalonia, its eggs are laid before the middle of April.

It will be seen that the identification of Aristotle's birds attempted to be made in this paper rests partially upon assistance given by two assumptions, *viz.* that the ancient Greek authors referred to the same kinds of birds whenever they used the same names, and that the avifauna of Greece, Turkey, and Asia Minor, at the present time, may be taken as a guide in forming an opinion as to the birds known by Aristotle. It would be very difficult to determine to what extent reliance can be placed upon these assumptions, but the probability of comparatively extensive changes in the avifauna of the countries mentioned since Aristotle's time has been specially impressed upon me by H. Seward, Esq., B.A. Oxon, to whom my thanks are due for reading the manuscript. That changes in the avifauna of the countries mentioned have taken place since Aristotle's time cannot be doubted, but it would be reasonable to contend that the assumption previously mentioned is reliable as far as the common, or tolerably common, species mentioned herein are concerned.

In conclusion, the following table will show, in a convenient form, the chief results of this attempt to identify some of the birds mentioned by Aristotle :—

Greek Names.	English Names.	Scientific Names.
ἄπους (*apous*) (=κυψελλος)	Common Swift	*Cypselus apus.*
	Alpine Swift	*C. melba.*
	House-Martin (?)	*Chelidon urbica.*
δρεπανίς (*drepanis*)	Sand-Martin	*Cotile riparia.*
χελιδών (*chelidon*)	Swallow	*Hirundo rustica.*
	Crag-Martin (?)	*Cotile rupestris.*
	House-Martin (?)	*Chelidon urbica.*
κύκνος (*cycnos*)	Whistling Swan	*Cygnus musicus.*
	Mute Swan	*C. olor.*
χήν (*chen*)	Grey Lag-Goose	*Anser cinereus.*
	Bean Goose	*A. segetum.*
ὁ μικρὸς χήν	White-fronted Goose	*A. albifrons.*
χηναλώπηξ (*chenalopex*)	Egyptian Goose	*Chenalopex ægyptiacus.*
αἶξ (*aix*)	[Pintail Duck ?]	*Dafila acuta.*
νῆττα (*netta*)	Mallard	*Anas boscas.*
βοσκάς (*boscas*)	Wigeon	*Mareca penelope.*
	Common Teal ?	*Querquedula crecca.*
πηνέλοψ (*penelops*)	[Common Teal ?]	*Q. crecca.*
φαλαρίς (*phalaris*)	Common Coot	*Fulica atra.*
κολυμβίς (*colymbis*)	Great Crested Grebe	*Podicipes cristatus.*
λάρος (*laros*)	Common Gull	*Larus canus.*
	Herring-Gull	*L. argentatus.*
	Adriatic Gull, &c.	*L. melanocephalus*, &c.
αἴθυια (*aithyia*)	Yellow-legged Herring-Gull.	*L. leucophæus.*

SOME FURTHER NOTES ON CHIPPED FLINTS AT YENANGYOUNG, UPPER BURMA.

By Rodway C. J. Swinhoe.

In the last volume of 'The Zoologist' (1902, p. 321) an account was given of two visits, made by Lt.-Col. Nichols, R.A.M.C., and myself to Yenangyoung, with the object of making further search for traces of early man in that vicinity, in consequence of the interest raised by papers published by Dr. Noetling on the occurrence of artificially chipped flints and a faceted bone, stated by him to have been found *in situ* in a bed of ferruginous conglomerate running round the Yenangyoung oil-field, and belonging to Pliocene, if not Miocene, age. Our second visit resulted in the discovery, practically at the place mentioned by Dr. Noetling, of a number of flint chips, not, however, in the Tertiary bed, but high above it, lying out on the surface of the plateau in such a way as to prove that these chips are of much more recent date than the Tertiary bed, and to have no connection with it.

On that occasion, however, we had so little time left to continue our search after coming upon these flints, that we were obliged to leave two important matters undetermined. The first was where the lumps of chert found partially or wholly chipped up came from, and the second was whether similarly chipped flints were to be found at other points on the plateau, or were confined to the neighbourhood of the place where Dr. Noetling found his.

These two matters have now been cleared up by a third visit which I was able to make to Yenangyoung not long after the publication of the previous paper in 'The Zoologist.' There is at Yenangyoung a plateau gravel, mentioned by Dr. Noetling as being peculiar in containing very large rounded stones, mostly of quartz, which must have come from a great distance, and have necessitated great carrying power to lay them down where they now are, probably some hundreds of miles from where they started.

This plateau gravel is conspicuously seen on the summit of the sand cliffs that abut on the left bank of the Irrawaddy at Yenangyoung, and is met with at other points inland. A new cart-road between Yenangyoung and Thittabwe (some two or three miles further down the river) is cut for part of the way through this gravel, and a good section is thus exposed.

As mentioned by Dr. Noetling, this gravel is chiefly composed of large pieces of rounded quartz, but an examination of it proved that it contains also fairly numerous lumps of chert, and is undoubtedly the source from which the men who produced the chips obtained their supply. The ground where the gravel exists is naturally hard and unpleasant to sit upon, being composed of large rounded stones, and it is clear that chert was obtained from the gravel, taken a short distance away to where the ground is soft and grassy, and there chipped up. At one place, not far away, I found a small collection of stones, among them several pieces of chert, and numerous chips of the latter, while a search in any direction resulted in the discovery of chips. So far from being confined to the neighbourhood of the place where Dr. Noetling found his, or to the places where the ferruginous conglomerate outcrops on the plateau, my experience was that it is impossible to walk anywhere about the oil-field, either inside or outside of the circumscribing band of conglomerate, without, sooner or later, finding these chips, sometimes few and far between, and sometimes in little bunches. Being for the most part merely fragments, while even the deliberately worked scrapers and other implements that are to be found are too inconspicuous to attract ordinary attention, they have remained unnoticed, and can be picked up among the oil-wells, lying where they have doubtless lain since they were made. One symmetrically shaped chip, which has the appearance of a diminutive scraper, or might be a roughly finished arrow-head, I picked up within fifty yards of the bungalow of the manager of the Burma Oil Company, as I was on my way to breakfast with him. Being a shrewd man of business, and an American, he was naturally unable to understand that I was only searching for stone implements, and was not spying out the land with a view to oil.

It was certainly a curious and instructive commentary on the progress of the world to be picking up the rough stone implements that represent the highest intelligence of primitive man in tool-making, while at my very elbow great 40 ft. steel borers were thumping their way for a thousand feet or more down through the ground to reach the oil-sands, and all around beam-engines were pumping the oil up to the surface. It is seldom, I think, that such striking representatives of ancient and modern industry can be seen at the same spot!

Mr. Oldham, of the Geological Survey of India, was with Dr. Noetling when they found some chips; he has seen what I have collected, and has also been to Yenangyoung again, and picked up some more for himself, and there can be no doubt whatever that the pieces found originally by Dr. Noetling are identical with those that are found scattered about everywhere. As the plateau gravel, which is the source of the chert, rests unconformably on the Tertiary beds, the chips, apart from their position on the surface, can have no connection with the Miocene or Pliocene beds.

Dr. Noetling, although he was engaged for several months in making a detailed geological map of the oil-fields, and examined the plateau gravel, does not appear to have noticed either the fact that chips, identical with those mentioned by him, are scattered about everywhere in no inconsiderable numbers, or that the plateau gravel contains lumps of chert, besides quartz.

Not having myself had the opportunity at that time of examining any similar objects from India or elsewhere, I submitted several of them to Mr. Bruce Foote at Yercand, in Madras, and that gentleman had no difficulty in finding a similarity between them and objects of typical Neolithic age from sites in Bellary, Kurnoot, Gujerat, and Kathiawar. He judges them to be of late Neolithic or even early Iron age, but distinctly not Palæolithic. Three or four specimens are well-worked scrapers, of small size as compared with European specimens, but good examples of their kind, with regular "gasteropod" working faces and secondary chipping along the edge; others are apparently scrapers of a larger and rougher kind, while specimens of peeling-stones and so-called sling-stones are to be found. Without, however, straining after resemblances, and striving to find uses for what may in some instances be merely accidental fragments, it is certain that among the chips are many that are as deliberately worked human artifacts as any ground and polished celt. It is perhaps not to be expected that the best implements will be found at the place where the manufacture of them took place, as they would, it is reasonable to suppose, be carried off, so that only "rejects" would remain behind; but a further search over a more extended area in the vicinity of the plateau gravel is needed to ascertain how far this is true. If the Neolithic men required suitable stones for grooving hard wood or bone, for peeling the bark from arrow- or lance-shafts, scraping skins, &c., there does not appear to be any good reason why they should not have done the required work on the spot. There are no high hills in the vicinity except the extinct volcano Mount Popa, some twenty or more miles away; and if the stone-working men were a savage tribe living on the sides of this mountain, while the plains were inhabited by more civilized people, they could not have come down to the river to get the material for their implements. I have three ground and polished celts, kindly given to me by Mr. Berrill, from Kyoukpadoung, that were found at the foot of Mount Popa, and it is probable that there were Neolithic men living on Popa, and using stone for their weapons, as there were on all the hills round Burma, while at the same time other men lived on the plains near the river, and used the chert which was found near at hand. They would hardly have chosen to live inland when they could live on the banks of a large river. So far the objects found are all small, and there is nothing that can be definitely called an offensive weapon, unless some of the specimens are arrow-heads, as they certainly may be.

The date of the stone stage of civilization must of course vary very much in different localities, but it would appear to be of some considerable age, even in the hills now occupied by more or less wild tribes around Burma, and would certainly be older in the case of peoples living on the plains.

Ground and polished celts, axe-heads, scrapers, and other objects are found in the Kachen Hills, to the north, in the Shan States, in the Chin Hills, and on the Upper Chindwin, and in Tenasserim in the south; but in no instance can any of the present inhabitants of these parts recognize in them the work of man. Universally they are considered, as in other parts of the world, to be "sky-arrows," thunderbolts that fall during storms, and get deeply embedded in the ground, but gradually work their way up to the surface, so that they may sometimes be found actually on the surface; sometimes may be turned up from just beneath when cultivating their hill-crops (taung-yas), and sometimes are discovered when digging for bamboo-rats, still deeply embedded in the ground. How a thunderbolt can get into the shape of a shoulder-headed celt, and how it can work its way up to the surface, they do not stop to enquire; but the fact that they have lost all idea of these things being ordinary human implements seems to show that the Neolithic men, whoever they were, are separated from the present inhabitants of these hills and valleys by a considerable period of time. And this matter is all the more curious, seeing that at the present day many of these people use implements which are plainly lineal descendants of stone implements. Thus, as an example, the Shans use a hoe, now made of iron, which is often very little larger than its ancestor, the shoulder-headed celt, and exactly resembling it in shape, except that, in place of the solid stone haft that had to be fitted into a hole made either directly through the handle, or in a piece of wood that fitted into the handle, there is now a hoop of iron. This, however, is not at right angles to the blade, as in a modern hoe, but in continuation of it, exactly as in the stone hoe. This is sometimes fitted on to a short piece of wood, which is then fixed through a hole drilled in a long handle, or, more generally, so far as I could see, a handle is chosen with a fork at one end, resembling the brow-tine of an antler, and the iron hoe is fitted to this fork. The connection between the Neolithic men and the tribes at present living in these parts seems clear, but the lapse of time has been sufficient for the intervening history to be completely lost. The only person whom I met who seemed to have any idea that human beings had had a hand in making these implements was the late chief of the Shan State of Thibaw (Hsipaw), who, however, had paid two visits to England, and was consequently a somewhat enlightened man. He once told me that there were two kinds of these stone implements—one kind made by the *nats* (spirits), and dropped from the sky, and one kind made by men; that if you found one of the latter kind and smelt it, nothing would happen; but that if you did the same with one made by the *nats*, blood would come from your nose, and you would die. There was, unfortunately, no means of telling which was which except by the result, so that it was as well to carry about an antidote, which would be found in a ring of pinchbeck, to be worn as an ordinary ring, and to be smelt as soon as your nose began to bleed.

History is not a strong point with Mongolian people, and it is perhaps useless to look to them for any account of the stone-using tribes whose implements they have copied in iron.

Yenangyoung is not more than a few hours' journey down the river by steamer from the ruined Buddhist city of Pagan, and, as the crow flies, perhaps not more than fifty miles, and it is hard to suppose that people so far back in civilization as to use flint scrapers and peeling-stones could be contemporaneous with the builders of that great religious centre, whose massive temples, unlike anything else east of the Euphrates, are still the wonder and delight of travellers. Yet, if there is any truth in the Burmese Royal Chronicle, the old kingdom established near Prome came to an end about 95 A.D., and the "Pyu," who formed a portion of that kingdom, fled to the north, and settled, under Thamudarib, nephew of the last king of Prome, at Nyoungoo, *i. e.* Pagan.

Whether Pagan was originally begun by settlers from the south, or from Tegoung on the north, it is undoubtedly an ancient site, and was probably a capital from the second century A.D. By the eleventh century it was certainly a celebrated city, with many fine temples, and was a centre of Buddhist learning. Polished celts have been found, if not actually on the site of Pagan, at any rate in the immediate neighbourhood; so that it seems clear that the Neolithic men in Burma—at any rate, those living on the plains in the vicinity of the Irrawaddy, and who are responsible for the polished celts, and the chert implements at Yenangyoung—must be referred to a date anterior to the Christian era.

Further search on the spot, and especially the finding of any drawings or carvings, may elucidate something more definite as to their date and identity.

BIRD NOTES IN SARK, 1903.

By E. F. M. Elms.

The following notes were taken between May 23rd and June 1st, during which time much enjoyment fell to my lot on this interesting and beautiful island.

Sark, seven miles E.S.E. of Guernsey, is not more than three and a half miles long, including Little Sark, joined only to Sark proper by the well-known Coupée, an isthmus or causeway of natural formation. The island at its broadest part is roughly one and a half miles wide, and has a very indented coast-line with precipitous cliffs, in some places about 250 ft. above low water-mark.

Some of the country is under cultivation, but the greater part is covered with gorse bushes, and divided up by numerous valleys, down which the little mountain streams hurry. The vegetation is rank and luxuriant, and, being so, it is a somewhat remarkable fact that certain birds were not noted that might have reasonably been expected to be abundant, and those few of certain species that were observed did not appear to be nesting freely.

I should not have been at all surprised to have seen the Wheatear, as at the northern part of Sark the country is quite suitable to its requirements, but not a single specimen was seen. Other notable absentees were the Redstart, Nightingale, Blackcap, all the members of the Wagtail family, Tree-Pipit, Spotted Flycatcher, Jackdaw, the Columbæ, and Gallinaceous birds. I fear it is an impossible task for me to try to assign any reason for the absence of most of them. Perhaps the close proximity of the sea may possibly account for some, and of course others may have escaped my observation.

But it is with the sea-birds that one finds more interest in Sark, and to visit them in their breeding haunts it is necessary to take a boat, and positively suicidal to attempt a visit without the help of a local fisherman. In fact, they would not, under any consideration, allow visitors to go by themselves, for the strong currents, even on the smoothest day, are terribly swift and dangerous except to the thoroughly seasoned and experienced boatmen.

May 29th was the day selected for this pleasant excursion, and, though the sea was generally as smooth as an inland lake, we experienced one considerable "bucketing" when landing on L'Etac de Sark, but this was the only difficult landing of the day, and was due to the fact that the tide was ebbing.

After all such a trip is not really expensive, for it means about seven hours' work for the boatmen, and the charge is ten shillings, with an additional two shillings for the two men's lunch, and whatever little tip you care to give them on the conclusion of the journey.

I was much struck by the sociability of the various kinds of birds that were nesting in close proximity to one another, and it was to me an altogether new feature to hear of the Lesser Black-backed Gull and Herring-Gull occupying the same nest. Our boatmen spoke of it as quite a normal state of affairs, and seemed quite surprised to hear that it was new to us. We all know that there are a great many birds who are eminently sociable when carrying out their marital duties, and we have also many a time heard of two Partridges sharing a common nursery, and sitting side by side on their eggs; but the fact of two different kinds of birds, although closely affined to one another, laying in and occupying one nest was, to me, at any rate, altogether new.

On landing at Grande Moie, I saw a Lesser Black-back fly off, and, having climbed up to the nest, discovered therein two eggs; one, the larger, which the boatmen assured me belongs to the Lesser Black-back, is pale olive-brown in ground colouring; the umber spottings and blotchings are rather more confluent towards the middle of the egg, and also to a lesser extent at the larger end, and it has a few faint grey markings; while the smaller one is a pale greenish stone-colour, spotted and dashed pretty evenly all over the surface, and at the large end there is a scribbly streak somewhat after the fashion of the Guillemot's egg, and in this one, too, there are faint grey underlying blotches. These two eggs I have in my possession. I also found another nest, containing three eggs, the dark variety of which was even darker than the one just quoted, and the other two almost the same as the lighter kind described; these I did not take, and have since regretted it, as it would have tended the better to substantiate the occurrence of these two birds nesting together. I do not altogether place too much reliance on the fisherman's statement, because I know very well that their information, though not actually perhaps fickle, is at all events sometimes a little inaccurate, and I should be very happy to hear some other observer's opinion as to whether this social and economical instinct has been noted in these two Gulls before, or whether it is that I have fallen into one of the many traps provided by the eccentricities of Nature for her youthful students.

The following is the list of birds, with notes on same, compiled during my visit:—

Mistle-Thrush (*Turdus viscivorus*).—Not so common as the next named, but met with several times singing from the tree-tops in various parts of the island. Found no nest of this species.

Song-Thrush (*T. musicus*).—Well distributed throughout the island, but always keeping well away from the sea. One individual sang from the trees opposite our windows punctually at daybreak, and again at night, right up to 8.45 p.m. on one or two occasions.

Blackbird (*T. merula*).—Quite one of the commonest birds. Found nests with eggs in various stages of incubation. On May 24th a nest of four young ones in a furze-bush.

Whinchat (*Pratincola rubetra*).—Saw only one individual, and did not see the nest.

Stonechat (*P. rubicola*).—This bird was quite abundant among the gorse on the western coast, and again in Little Sark, but was less noticeable in other localities which seemed to be equally suitable.

Robin (*Erithacus rubecula*).—Common. Saw two or three broods of young ones, and found deserted nest with five eggs in hollow in grassy bank at side of road near Beau-regard.

Whitethroat (*Sylvia cinerea*).—Rather rare. Did not see this species many times.

Lesser Whitethroat (*S. curruca*).—I fancy I saw this bird once near the Seigneurie grounds, but am not quite sure.

Garden Warbler (*S. hortensis*).—Once heard one singing from the tangle at the side of road running through the Seigneurie grounds, and also saw one fidgeting about in brambles in the same neighbourhood. This bird seemed to have a nest, but I did not discover its whereabouts.

Goldcrest (*Regulus cristatus*).—One sang from some firs close to where we were staying; it was not a common species.

Chiffchaff (*Phylloscopus rufus*) and **Willow-Wren** (*P. trochilus*).—A few in the neighbourhood of the Dixcart valley.

Wood-Wren (*P. sibilatrix*). — Less abundant than the last two species.

Hedge-Sparrow (*Accentor modularis*).—Common everywhere, seeming to have no special preference for any one locality, and met with often on the cliff sides.

Great Tit (*Parus major*).—More of these birds than any other members of the family; saw a family among the bushes at the top of the Creux Derrible on May 26th.

Blue Tit (*P. cæruleus*).—Not so many of these birds as might have been expected. No other representatives of the Parine birds came under my notice.

Wren (*Troglodytes parvulus*).—Very abundant everywhere on the island. Found several dummy nests, one built into the side of a furze-bush, and, as usual, none of them with any lining. On several occasions the Wren was heard singing quite close to the sea, almost as low down as the Rock-Pipit.

Meadow-Pipit (*Anthus pratensis*).—The breeding period, as a rule, must have been over, for I saw no nests of this species with eggs. They sang incessantly from the gorse-covered cliffs, launching forth into the air, and descending in their own peculiar parachute-like manner. On May 28th, on the cliffs above Havre Gosselin, saw a parent feeding one of its offspring. The youngster, just able to fly, perched on a spray of gorse, agitating its wings as though to balance itself, and the parent (I am not sure which sex) hovered in the air over the young one, and dropped what looked like a caterpillar into the opened mouth.

Rock-Pipit (*A. obscurus*).—Local name, "Sea-Lark." By far the most common kind of Pipit, and even perhaps more abundant than any other kind of bird, excluding of course the sea-birds. Spent much time trying to find the nest, but without success. The fishermen, though so familiar with this bird—a common species in the Channel Islands—were mostly ignorant of its nest and eggs.

(To be continued.)

NOTES AND QUERIES.

MAMMALIA.

The Burmese Gaur, or Pyoung.—It has for many years been a question among naturalists whether the Gaur inhabiting the countries to the eastward of the Bay of Bengal could be subspecifically distinguished from the typical *Bos* (*Bibos*) *gaurus* of India. A head of a bull obtained from Myitekyina, in Upper Burma, by Mr. Joseph Reade, and mounted by Rowland Ward, of Piccadilly, which I have recently had the opportunity of inspecting, leaves little doubt that this question should be answered in the affirmative, so far as regards the Pyoung, or Burmese representative of the species. And if this be so, there can be little or no doubt that the Saladang (Slading), a Malacca form of the species, likewise belongs to a race apart from the typical Indian animal. It is true that the young bull from Penang, living in the menagerie in the Regent's Park in 1890, and figured by Mr. Blanford in the Zoological Society's 'Proceedings' for that year, did not show any well-marked features by which it could be satisfactorily distinguished from the Indian form; but this may have been due to immaturity, and it has been stated that the adult Saladang is characterized by the rufous (instead of pure white) colour of its "stockings." Whether the Malay animal differs from the Burmese form of the species must, however, await further investigation.

In my work entitled 'Wild Oxen, Sheep, and Goats' reference is made to certain observations which tend to show that the skulls of Gaur from the countries on the eastern side of the Bay of Bengal differ somewhat from those of the typical Indian animal. The main difference appears to consist in the greater breadth across the forehead of the eastern skulls, some of which are, however, said to exhibit a certain approximation towards the Gayal type.

In the same work reference is made to certain observations of Colonel Pollok, to the effect that the Burmese Gaur is taller than the Indian animal, with the ridge on the shoulder extending further along the back, the concavity of the forehead more pronounced, and the horns larger, heavier, and shorter, with the tips seldom worn. One other point requires mentioning before further reference is made to the new specimen. It used to be stated that the Gaur is characterized by the absence of a dewlap, and of many specimens this appears to be true. On the other hand, it is stated that in Travancore some of the old bulls display a very strongly developed dewlap, although their character is not constant in the district. More important still is a statement by Mr. C. W. A. Bruce, published in my work on the 'Great and Small Game of India,' &c., that the Burmese Gaur is always distinguished by the presence of a large dewlap in the old bulls, as well as by their very dark colour.

Unfortunately, Mr. Reade's specimen does not exhibit the whole of the throat, but sufficient remains to show not only that there was a well-marked dewlap, but that the upper portion of this, at any rate, carries a tuft of long black hair. Such a throat-fringe is quite unknown in Indian Gaur, and its occurrence in the Burmese form seems quite sufficient to indicate the racial distinctness of the latter. In the specimen under consideration the hair of the face is marked by a number of small light-coloured spots, very similar in hue to the light area on the forehead; whether, however, this is anything more than an individual peculiarity, I am unable to say. Very noticeable is a band of tawny hair immediately above the naked portion of the muzzle, which is always light-coloured in Gaur. A trace of this tawny band is observable in the plate accompanying Mr. Blanford's notice of the young bull from the Malay Peninsula, to which reference has been already made; but it is altogether wanting in the two mounted Indian Gaur in the British Museum, in which the whole of the hairy part of the muzzle is dark-coloured, with the exception of a small streak on each lip.

It may also be mentioned that the general colour of the hair of the Burmese head (both in the dark and light areas) apparently differs somewhat from that of Indian examples, although I have not had an opportunity of making an exact comparison in this respect. The horns, too, are distinctly different in appearance from those of Indian Gaur, being decidedly peculiar. In old Indian bull Gaur it is generally, if not invariably, the right horn that has its tip worn away by the animal constantly using this horn more than its fellow. In the Burmese specimen, on the other hand, it is the left horn that is thus worn. Whether this is anything more than an individual peculiarity, I am of course unable to say.

The foregoing comparisons seem to leave no reasonable doubt of the right of the Burmese Gaur to rank as a distinct race, for which I propose the name of *Bos gaurus readei*, making as the type Mr. Reade's specimen (of which I hope to obtain a photograph later on). The distinctive features of the Burmese Gaur will be the large dewlap, furnished with a fringe of long black hair, and the band of tawny hair above the naked portion of the muzzle. Whether the Malay Saladang is or is not identical with this race must for the present remain uncertain. It is, however, noticeable that the aforesaid young bull from Penang shows a light-coloured area above the muzzle, and the absence of a throat-fringe in that animal might well be due to immaturity.—R. Lydekker (Harpenden Lodge, Harpenden).

Mus sylvaticus wintoni in Suffolk.—On June 15th my cat brought in an example of this species or variety (*cf. ante*, p. 150), and on the 17th a second, both of which I sent to the Norwich Museum. They were fine specimens, measuring in the flesh nearly nine inches from the tip of the nose to the end of the tail, and, owing to the very cold weather, reached their destination in good condition. The cat by whom they were caught is very tender-mouthed, and nearly always brings in his captures uninjured, the only exception I have noticed being a fine cock Hawfinch, which he caught one day close to the front door. On this occasion the bird probably bit him sharply, as he had mauled it so as to render it useless. Should any readers of this Journal wish for a specimen of the large Field-Mouse in the flesh, and will write to me, I have no doubt that others will turn up, and I shall be pleased to send them on.—Julian G. Tuck (Tostock Rectory, Bury St. Edmunds, Suffolk).

AVES.

White Wagtail (Motacilla alba) in the Isle of Man. — On May 3rd last I observed a party of about twelve birds of this species feeding amid cast-up and decaying wrack about high-water mark on the shingle of Castletown Bay. They continued for a week at least to frequent this locality. Mr. F. S. Graves saw a White Wagtail at Peel on May 19th, 1892, and Mr. J. Townsend reported in the 'Field' of April 29th, 1899, a pair seen at Port Erin in the spring of that year. These are, so far as I am aware, the only Manx records, but, as the species is traced on migration from Cornwall along the Welsh coast to the Solway, Clyde, and the Hebrides, its occurrence in Man is doubtless regular.—P. S. Ralfe (The Parade, Castletown, Isle of Man).

Abundance of Swifts (Cypselus apus) in South Hants.—The summer visitors to this part of Hampshire have been very irregular and uncertain in their appearance, arising no doubt from the changing and unseasonable weather we have experienced. For the most part all were late in coming, some as much as a fortnight behind the usual date of arrival, and of several species the numbers were much below the average. The Spotted Flycatcher, the Nightingale, and other Warblers seem normally represented, but the Corn-Crake has scarcely been heard at all, and, as far as I can learn, the Hobby is entirely absent; whilst the Cuckoo, Nightjar, Yellow Wagtail, and others are certainly not so abundant as they are some seasons, and the Swallow tribe are decidedly scarce compared with former years, the continued chilly atmosphere causing most of them to flutter about in a semi-dazed and benumbed manner. The most abundant appear to be the Swifts, of which there are more than I ever remember seeing; they literally swarm in sheltered situations, hundreds of them being on the wing at the same time. Is it possible the migration further north was hindered by the cold winds prevailing at the time of their arrival, and that consequently we in the south have a double or triple share? It is quite evident not one-tenth of the number nest in the neighbourhood, and I am informed the birds are equally abundant in East Dorset. If the poor birds have the power of recollection—which from personal observation I have every reason to suppose they possess—this cold season must have deceived their best anticipations, for in the evenings, instead of their joyous, happy squeal as they dash in winged ecstasy near their nesting-places in the old thatched gable, we see their ebon, cross-like forms against the grey sky as in silent pendulizing flight they glide to and fro in the rain; and, as the night approaches, there is none of their well-known soaring, with screaming lay, into the space where "daylight dies," but they cling in clusters about any tall building, and not a few perish. This clustering habit is very peculiar, some of the festoons thus formed being from eighteen inches to two feet in length, sometimes the outer and more benumbed individuals dropping down from the general mass. The appearance reminded one somewhat of the habit of the Hive-bee (*Apis mellifica*) when wax-forming. Since the finer weather the Swifts are much more dispersed. It would be interesting to know if they have gone further north.—G. B. CORBIN (Ringwood).

Note on the Kestrel (Falco tinnunculus).—Some time ago a gamekeeper brought me a Hawk, of the name of which he professed to be ignorant, possibly with an idea that the value of the bird would be increased thereby. It was one of the best plumaged male Kestrels I had ever seen, both in colour and feather, the usual ash-grey of head and tail being a decided blue, the black band of the tail appearing more conspicuous from the whiteness of the tip, and the fawn-colour of the back seeming to have a pink or rose-colour sheen above its sparsely spotted perfection. The man volunteered the information that he had seen it strike down a Wood-Pigeon (*Columba palumbus*), and in confirmation of this extraordinary statement he said he had baited a trap with the Dove, and so secured the Kestrel, which had devoured some portion of the quarry. If the Pigeon had been knocked down by any bird of prey, in all probability it was by the impetuous dash of a Peregrine Falcon; and as to the Kestrel having eaten any portion of it, the dissection of the supposed murderer proved quite the contrary, as no bird-remains were found in the stomach, but a mass of broken and half-digested legs, elytra, and other hard parts of several beetles, and two or three empty skins of medium-sized lepidopterous caterpillars, too much pressed and torn to distinguish the species; amongst it all were the lower jaw-bones of some small rodent—Mouse or Shrew—and, what appeared to me rather remarkable, some pieces of *flint*, parts of which were worn quite smooth, and such as one would expect to find in the gizzard of a gallinaceous species; had they been small and "gritty," I could have supposed they had been swallowed within the body of some small bird the Kestrel had taken, but their size militated against such a conclusion, as some of the stones were nearly as much in diameter as a threepenny piece. I do not recollect ever finding anything like it in any kind of Hawk before (that is no reason, however, that they do not thus occur); but do carnivorous birds require "grit" to promote digestion? Beyond a broken leg the bird seemed uninjured in any way; had its plumage been dirty or displaced one might have thought that in its struggles to release itself from the trap it might have picked up the stones, but in such a case I suppose they would have been found in the "crop," and not in the stomach.—G. B. Corbin (Ringwood).

Rough-legged Buzzard and Montagu's Harrier in Derbyshire.—On March 11th a Rough-legged Buzzard (*Buteo lagopus*) was trapped on the moors between here and Sheffield. At the same time there was a Montagu's Harrier (*Circus cineraceus*) on the same moor, and one or both these birds had been destroying a considerable number of Grouse. The Harrier was shot towards the end of April.—W. Storrs Fox (St. Anselm's, Bakewell).

British Grey Geese.—I have read with great interest the recent articles in 'The Zoologist' (1903, pp. 41–52), and in the 'Field' of various dates, on British Grey Geese, by Messrs. Frohawk, Coburn,

&c., and would like to make a few remarks on these articles. To begin with, I will take the Pink-footed Bean-Goose.

PINK-FOOTED BEAN-GOOSE (*Anser brachyrhynchus*).—As I have said before, I do not believe there are two species found in this country. Since my letter in the 'Field' on Dec. 6th, 1902, when I gave the weights of some of these Geese, I have obtained two which were heavier than any of those I then mentioned, one weighing 7¾ lb., and the other 7¼ lb. Mr. Frohawk, in his article in the 'Field' on Dec. 20th, 1902, written in reply to my letter of the 6th, seems to lay great stress on the number of laminæ in the bill; but I think in a later article he has come to the same conclusion as I did some time ago, that the number of laminæ is nothing to go by. In the former article he says that *A. brachyrhynchus* never has more than twenty-one laminæ on each side of the bill, and that if more are present the Goose is *A. neglectus*, and not *A. brachyrhynchus*. In support of this statement he quotes the opinion of Mr. Serge Alpheráky, the Russian ornithologist.

In my large Goose which I mentioned in the 'Field' of Dec. 6th, 1902, there were twenty-three laminæ on one side and twenty-one on the other side of the bill. The colouring of the carpal and lesser wing-coverts varies very much in the Pink-footed Goose, as also does the colour of the whole bird. A specimen which I shot on Jan. 21st, this year, is almost black on the wings, instead of bluish grey, but still it has twenty-one laminæ on either side of the bill, and weighed 6¾ lb. The length of the bill in my large Goose was more apparent than real, owing to its slimness, but really it was only ¼ in. longer than most specimens, measuring $1\frac{11}{12}$ in. instead of 1⅔ in., which is nowhere near $2\frac{5}{16}$ in., the length of bill in the new species, *A. neglectus*. I agree with Mr. Boyes in saying that there is much variation in the colour of the feathers, according to age. My specimen with the large triangular head and thin beak was a very light-coloured bird, an adult male, number of laminæ twenty-three and twenty-one, weight 7 lb. Another specimen, an adult male, was very dark in colour, and had twenty-one laminæ on each side; weight, 6¾ lb. Another dark-coloured specimen had the same number of laminæ, and weighed 7¼ lb.; this was an adult female. Two other light-coloured specimens, a male and female, weighed respectively 7¾ and 6 lb. I did not count the laminæ in the former, but in the latter they numbered twenty-one on either side. A young specimen, a male, was also light-coloured, had twenty-one laminæ on one side and twenty on the other, and weighed 5 lb. 2 oz.

The bluish-grey birds are more numerous than the dark-coloured ones, the proportion, as far as those which I myself have shot, being about six to one in their favour. The difference in colour is not due to sex, as I have shot male and female of both varieties; neither is it due to age, as I have shot old and young birds of the light-coloured variety, and also of the dark-coloured. The White-fronted and Bean Geese vary as much, or even more, in colour than the Pink-footed species.

THE WHITE-FRONTED GOOSE (*Anser albifrons*).—I will describe three birds in my collection, all of which I obtained in the Hebrides during the past winter. They all have the white line under the eye, although in No. 3 it is dusky white.

No. 1.—White on forehead and face typical; breast white, and covered with brown spots; weight, 5 lb. 8½ oz.

No. 2.—White on forehead very much extended, reaching to the top of the head; white on face typical; breast slightly barred, but not nearly so much as on some specimens I have seen. Smaller in body than No. 1, but almost the same weight, 5 lb. 8 oz.

No. 3.—No white on side of face or forehead at all, only a very few white specks round the base of the bill. Breast dusky white, with no spots or bars. Weight, 4 lb. 4 oz. The head of this bird was enormous and very triangular, the neck very long, and it was much larger in body than either of the others, although it weighed less, but still it had the typical bill with the white nail of the species,* and the orange-yellow legs and feet. Some White-fronted Geese I have seen have been so heavily marked on the breast with black bars that they appear to have jet-black breasts. Unfortunately I have not one of these specimens set up. I take them to be fully adult birds. Messrs. Coburn and Gurney seem to recognize three British species of this Goose, viz. *A. albifrons*, *A. erythropus*, and *A. gambeli*. As with the other species of Grey Geese, I think the variations in plumage are due to age. In my three specimens mentioned above, I call No. 1 a three-year-old, No. 2 a four-year-old, and No. 3 a bird of the year. I do not think they have the heavily barred breasts until six or seven years old, or even older. I suppose that Messrs. Gurney and Coburn would call No. 1 *albifrons;* No 2 *erythropus*, on account of its small size and the large amount of white on the forehead; and No. 3 *gambeli*, on account of its larger size, heavy head, and long neck, although the colour of the breast does not agree with their description of this so-called species.

THE BEAN-GOOSE (*Anser segetum*).—The Bean-Goose seems to be a still greater puzzle to some ornithologists. Mr. Frohawk (*ante*, p. 41) describes the two supposed species *arvensis* and *segetum*, and gives drawings of the bill. He says that *segetum* is the rare species, and that *arvensis*, with the band of white feathers at the base of the bill, is the common British species of Bean-Goose. Has Mr. Frohawk got his numbers mixed? Should plates iii. and iv. with the white band be *segetum* and not *arvensis*, and *vice versa?* I ask this question for a very good reason, *viz.* that the few Bean-Geese that have passed through my hands have had no white band, and therefore must have all been the rare species, *segetum!* Of course, compared with the Pink-foot, White-fronted, and Bernicle Geese, I have not had much to do with the Bean-Goose, but still the fact remains that the few I have handled have had no white band, and, according to Mr. Frohawk's plates, must have been specimens of *segetum*. Of course I do not believe for a moment that there are two species of Pink-foot and Bean and three of White-fronted Geese occurring in this country. I think that the variations in plumage are merely due to age, and perhaps sex may also have something to do with it, although I rather doubt this latter statement after my observations on the Pink-footed species.

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* The bill was not quite typical in No. 3. The nail was white at the base and black at the tip; half-white and half-black.

Mr. Coburn gives an example of *arvensis* which had no white band of feathers at the base of the bill, as mentioned in Mr. Frohawk's article (*ante*, p. 41). This shows that there are variations between the bills of *segetum* and *arvensis*, which makes me more confirmed in saying that there is only one species of this Goose. We might as well make out this example to be yet another species. Again, Mr. Frohawk says that in *A. segetum* there are, as a rule, no white feathers at the base of the bill, excepting in old birds, where a small frontal patch of greyish white may occur. More variations between the so-called two species. I should rather say that the white patches at the base of the bill in the Bean-Goose are a sign of immaturity, and not of old age.

Mr. J. M. Pike's letter in the 'Field' (Dec. 20th, 1902) shows, again, that there are variations between *segetum* and *arvensis*. The following is an extract from his letter describing *A. arvensis*:—"The bills of the better defined specimens are orange-yellow, with the exception of the nail, an elongated heart-shaped piece running up towards the feathers, and the ridges of the indentations beneath; these are black. This agrees with Mr. Frohawk's statement, *but it is limited to the better defined specimens.*" He goes on to say:—"*The amount of yellow on the bill varies considerably*, to such an extent that it appeared possible *that a complete series* from the single band seen in *A. segetum* to the nearly all yellow of *A. arvensis* could be obtained."

He then mentions his five examples of *A. segetum*, shot in Holland out of a flock of six. Note the number of the laminæ in four of them, given in Mr. Frohawk's article in 'The Zoologist':—1. Ad. ♂. Laminæ each side, 21. Bill, $2\frac{3}{8}$ in. 2. ♂. Laminæ each side, 24. Bill, $2\frac{5}{16}$ in. 3. ♀. Laminæ each side, 21. Bill, $2\frac{1}{8}$ in. 4. ♀. Laminæ 22 left and 21 right. Bill, $1\frac{15}{16}$ in. There is some variation here in the so-called *A. segetum* alone, which shows that in the Bean, as well as in the Pink-footed Goose, the number of laminæ, as well as the length of the bill, varies a good deal. To identify the Bean-Goose at a glance, I always look for three things, *viz.* the yellow legs, the black nail, *and the orange band on the bill.* Mr. Frohawk now tells us that this orange band is only found in *segetum*, the rare species, and that the upper mandible in the beak of the common species, *arvensis*, is almost wholly orange-coloured.

A statement by Mr. J. H. Gurney, mentioned in Mr. Coburn's article (*ante*, p. 46), shows the current tendency to create new species. It is as follows:—"And as long as the slightest difference in colour—even to the colour of an eyelid—can be found, combined (as it is in this case) with some difference of habitat, surely such birds ought to be kept asunder." This statement, I think, is indefensible. We might breed hundreds of new species of birds every year. If every variety of a bird is to be called a new species, the science of ornithology is limitless. All the fancy varieties of the Pigeon are far worthier of classification as distinct species than these little differences, say, between *A. brachyrhynchus* and *A. neglectus*, or *A. segetum* and *A. arvensis*. I might say that all my observations on these Geese have been taken not from museum specimens, but from freshly shot birds, and I have several times kept winged birds of the Pink-footed, White-fronted, and Bernicle Geese alive for short periods, in order to study them. I may be wrong, but Mr. Frohawk's remarks on these Geese seem to show that he has studied museum specimens, and got his other information secondhand from fowlers in different parts of Europe. It would be very interesting to have Mr. J. G. Millais' opinion on Grey Geese.

My acquaintance with the Grey Lag-Goose is almost *nil*, but I hope to know it better this winter. Mr. Coburn mentions the late Mr. Ernest C. Tye's opinion on his Red-billed Grey Lag-Goose. Although Mr. Tye may have been a very keen wildfowler, I think, from his articles, that his experience may have been limited to about three days' shooting in the year, *viz.* on Christmas Day, Boxing Day, and New Year's Day; so, as far as practical experience goes, if such was the case, his opinion was not indubitable. Of course, the Mr. Tye I have in my mind may not have been the same gentleman mentioned by Mr. Coburn.

It may be of interest to state that last winter, on two certain little islands adjoining one another in the Hebrides, I came across all the British Geese with the exception of the Pink-footed species, White-fronted and Bernicle being especially very numerous. Two pairs of Grey Lag-Geese are nesting on one of these islands now. Besides these there were a great many Swans, Bewick's chiefly, but a fair number of Whoopers also, with a few Mute. In another part of Scotland I saw more Pink-footed Geese than in any previous winter; there must have been between four and five thousand of them in this place alone.

I trust that some authority will settle this question on the Geese once and for all, and show that really there is but one species each, of the Pink-footed, Bean, and White-fronted Geese.—H. W. Robinson (Lansdowne House, Lancaster).

Anser rubrirostris. Dr. Radde's Evidence.—M. Sergius A. Buturlin is to be thanked for the interest he manifests in our Wild Geese; his desire to see that all references are correct is most laudable, but, if the citation he gives us in German from the late Dr. Radde's work on 'The Birds of the Mainland of North-East Siberia' (*ante*, p. 233) has been correctly printed, it must have sorely puzzled all who have read and translated it. As printed, the quotation does not appear to me to be in very graceful German; a little transposing, however, would make it read thus:—"Auch an diesem Vogel sehe ich um die Oberschnabelbasis einen recht eclatanten rostbraunen* Ton sich verbreiten, der zu brennenden Fuchsroth gesteigert wird (und reicht bis) auf einem schmalen, vielfach von weissen Federchen durchsetztem Bande welches die Schnabelbasis einfasst. Ausserdem (*i. e.* with this exception) war der ganze Schnabel dieses Vogels schmutzig weiss." This, freely translated, would read thus:—"Also (or again) in this bird I notice around the base of the beak a very marked rusty-brown (or red-brown) colour, which becomes a burning (or flaming) fox-red, and this reaches up to a small band with numerously interspersed white feathers, which surrounds the base of the beak. With this exception the whole of the beak was of a dirty-white colour."

Here then M. Buturlin supplies us—apparently quite unconsciously—with a perfect confirmation of the *accuracy* of Count Salvadori and Dr. Bowdler Sharpe's translation of Dr. Radde's words! Indeed, no person who had seen a recently killed specimen of this bird could place any other interpretation on them. The suggestion that Dr. Radde referred to a band of flaming red *feathers* on any part of the body of a Wild Goose must be instantly dismissed. It is clear to me that Dr. Radde gave his description from a bird which had been dead for several days. The whole of the colours gradually faded from the bills of my five birds, leaving them of a dirty-white colour, but the space occupied by the brightly coloured crescentic-shaped band remained distinct on the bill for a very long time, and can be faintly traced even now. The most important confirmation of my observations on the colours of soft parts in this bird is that of Mr. Stewart Baker, quoted by me (*ante*, p. 49), a gentleman who has seen the *living* birds.—F. COBURN (Holloway Head, Birmingham).

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* Perhaps in the original this is rothbraunen=red-brown.

[We have printed the above letter in deference to Mr. Coburn, but the quotation given by M. Buturlin is not only correctly printed, but was compared at the time and found to be verbatim with the remarks of Radde. Whether Mr. Coburn is justified in transposing the original words of Radde into more "graceful German," and then "freely translating" same, is of course an open question.—ED.]

Pintail inland in Cheshire.—Shortly after sending you my previous note on this subject (*ante*, p. 229), I had an opportunity of examining a Pintail drake which was shot on the pool at Toft, near Knutsford, in the spring either four or five years ago. The bird is in the possession of a gamekeeper, who had noticed it for a fortnight or more on the pools at Toft and Norbury Booths before he shot it. He assures me that he used to see the Pintail daily in the company of a Mallard duck, with which it had paired. When the Duck had laid and begun to sit he took the eggs and put them under a hen. The young hybrids naturally showed no trace of their father's handsome plumage, and as they only differed from their companions, some young Mallards, in having nearly white under parts, the keeper did not attach any value to them. Unhappily they were turned down on the pool with the other Ducks, and were shot in the autumn.—CHAS. OLDHAM (Knutsford).

Note on Shoveler (Spatula clypeata), &c., in Valley of Avon, Hampshire.—This handsome species is said to have bred in this neighbourhood more than once, but I have never been able, from personal observation, to confirm the statement, although I have on several occasions seen some very immature birds, as far as plumage is concerned, but none so young that they were unable to fly. As a winter visitor its numbers are rather uncertain; some three or four years ago I knew of ten or twelve having been killed upon a piece of water of no very great extent, but that occurrence was exceptional, and half that number is nearer the average. Last year, throughout the spring months and well into the summer, a pair frequented a large piece of meadowland in the vicinity of the river, and near a wood, but whether they nested or not I am unable to say, but I was informed that the male was not noticed after the middle of June, a date I imagined far too advanced for any Duck to go north for nesting. I believe the male of this species doffs his gay plumes after nesting, like the ordinary Mallard, and it is possible he is overlooked in his more subdued dress. It may here be mentioned that the river and almost every foot of its environs are under the strict watch of the game-preserver, very different to what it was in my bird-nesting days. This season the birds are still in the neighbourhood, having been seen in pairs at three different places, especially during April and May, and on one occasion three males were seen together. Last winter I knew of only two or three being shot, and those not in the locality where either pair were seen. Whilst on the subject of wildfowl of the Avon, it may be interesting to note that last winter, although the weather was so mild and open, I knew of at least three Gadwall (*Anas strepera*) being met with on one shooting where the species is very seldom seen, and some eighteen or twenty of the Pochard (*Fuligula ferina*) were killed where in previous winters it had almost disappeared. Wigeon (*Mareca penelope*) and Teal (*Querquedula crecca*) were not abundant; Wild Duck (*Anas boscas*) were about of normal quantity, but Golden-eye (*Clangula glaucion*) and Tufted Duck (*Fuligula cristata*) were few and far between, and I knew of but one Pintail (*Dafila acuta*). Two or three Bitterns (*Botaurus stellaris*) were seen, and I am glad to say their lives were spared. It is gratifying to know that the Redshank (*Totanus calidris*) nests in several places hereabouts, where a few years ago its presence was comparatively rare.—G. B. Corbin (Ringwood).

Redshank carrying her Young.—A relative living at Orford, Suffolk, told me a short time back that he had lately seen a Redshank (*Totanus calidris*) carrying a young one in its feet. The bird flew close over him, and he saw distinctly the chick held underneath her. This was at some little distance from the river, and the bird was probably conveying her young from the breeding-ground to the saltings and marshes by the river.—G. T. Rope (Blaxhall, Suffolk).

Variation in the Guillemot.—Having no opportunities here of obtaining Guillemots, I thought it best to return the curious specimen (*cf. ante*, pp. 158, 194, 230) to Dr. Saxby, and still believe that it is a hybrid between the Common and Brünnich's Guillemots. Whether the Icelandic breeding-grounds of the two species overlap I do not know, but the bird in question, which Dr. Saxby sent me in the flesh, was very thin, and gave me the idea of being a storm-driven wanderer. I just missed getting the Cambridgeshire Brünnich's Guillemot which we have here (*cf.* Zool. 1895, p. 109) in the flesh, but should imagine that no two birds could be found more similar in size, structure, and habits than the two species of Guillemot, and more likely to interbreed. We have here a hybrid between the House-Sparrow and Tree-Sparrow (*cf.* Zool. 1894, p. 111), and the interbreeding of Pied and White Wagtails is not uncommon. Should Dr. Saxby ever obtain another Guillemot like the one he kindly sent me, and which I felt all along ought to have been in his own possession, no doubt he will record it; but my own impression is that he will not soon meet with a similar one.—Julian G. Tuck (Tostock Rectory, Bury St. Edmunds, Suffolk).

Birds and the Resonance of War.—I remember reading, after the termination of the Franco-German war, and the fall of the Commune, that birds had been scared from the neighbourhood around Paris by the sound of the heavy firing, and the farmers had consequently suffered from a multiplicity of insect-foes. I had always concluded that such an occurrence was inevitable where the din of warfare had abounded, and have been considerably surprised by meeting with what appears to be somewhat contradictory evidence in the annals of the recent war in South Africa.

Thus at the battle of Colenso, or Tugela River, very heavy firing took place, and, in the words of a bandsman, "the *crescendo* in Rossini's 'William Tell' was fairly eclipsed by the effect of the guns."* Mr. Bennett Burleigh, writing on this engagement, says:— "The battle proceeded with undiminished fury; yet, as in all big actions, there were those unaccountable and strange lulls, when the sound of conflict drifted into silence, *the birds took up their songs*," &c.† (the italics are our own).

Again, during the siege of Ladysmith, Chief Engineer C. C. Sheen, R.N., writes:—"The gum-trees were full of the hanging nests of the Weaver-birds, or South African Canary, as the inhabitants called them; and the presence of these pretty little birds in the camp seemed to lend an air of security and peace to the surroundings, in spite of the incessant scream and splash of the shells, as they passed sometimes close over the camp, sometimes a few yards away on the road in front of it, according as they were directed," &c.*

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* 'The Epistles of Atkins,' p. 51.

† 'The Natal Campaign,' p. 201.

Can some of our military readers support these statements from their own experience? or have others met with similar records in their readings?—W. L. Distant.

Ornithological Notes from Guernsey.—Since writing on the Birds of Guernsey (*ante*, p. 231), I have added the following notes:—

Black-throated Diver (*Colymbus arcticus*).—On May 10th I obtained an immature male of this species, picked up dead on the beach near Cobo. It was in very poor condition, and had evidently died of starvation. This is an interesting record, as the species has only once been recorded before from Guernsey.

Puffin (*Fratercula arctica*).—On May 31st I visited some rocks off Herm, known as the "Humps," and found the Puffins breeding there in thousands. The soft ground was fairly riddled with their holes. No young birds were found, but only highly incubated eggs. Besides Puffins there were Razorbills, Guillemots, Stormy Petrels, and Herring-Gulls, all breeding.

Sandwich Tern (*Sterna cantiaca*).—I have found this species fairly plentiful here, and I know places where it breeds.

Kentish Plover (*Ægialitis cantiana*).—This bird, if not common, is found in some numbers on several parts of the coast, and I know where it breeds.—Gordon Dalgliesh (Clairval, Collings Road, Guernsey).

Sea-birds inland.—During the months from early autumn to late spring it is well known that various coast-loving birds—especially the Gull family—often frequent inland waters, or even fallow-fields and ploughman's furrows, want of food, storm, and tempest driving them from their favourite haunts by the sea, and doubtless the rough cold weather of April, May, and the first half of June, together with the continued rains and consequent floods, account for the unusual number of such species as have appeared amongst us this season, the Black-headed Gull (*Larus ridibundus*) having been particularly abundant. Very few people in this neighbourhood—even those in the habit of carrying a gun—were acquainted with the species in its nesting-dress, and their occurrence has excited considerable interest and many inquiries as to their origin and purpose here. It is pleasant to know that of late years the species has showed a decided increase in numbers, and with this consideration their occurrence perhaps is not remarkable, as I understand a colony of the birds exists at no greater distance than the neighbourhood of Poole, and we are well aware *ridibundus* has no particular preference for salt water, but their presence here in such numbers at the time of nidification is very unusual. Amongst them were a few Kittiwakes (*Rissa tridactyla*), Herring-Gulls (*Larus argentatus*), and perhaps still fewer of *L. canus*; but the most remarkable occurrence was the capture of a Guillemot (*Uria troile*), in full breeding plumage, on a small stream at Verwood (Dorset), just over the Hampshire border; whilst two Razorbills (*Alca torda*) were found dead, one near Fordingbridge, the other in the forest, both apparently starved to death, and too decomposed for preservation. More than one species of Tern (*Sterna*) oftentimes are seen on the river in their spring migration, but this season none have appeared,—G. B. Corbin (Ringwood, Hants).

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* 'Naval Brigades in the South African War, 1899–1900,' pp. 212–13.

Extinction of the Kite: a Correction.—I regret that, owing to a misplacement of quotation marks in my note upon this subject, several statements are attributed to Mr. R. J. Ussher for which that gentleman is in no way responsible.—J. H. Salter.

AMPHIBIA.

Natterjack Toad in Suffolk.—On June 17th, when at Wortham, within a mile of the river which there forms the Norfolk and Suffolk boundary, a boy called my attention to "a funny frog." It proved to be a beautiful little Natterjack Toad, about half-grown. This is, I think, a new locality for this species.—Julian G. Tuck (Tostock Rectory, Bury St. Edmunds, Suffolk).

NOTICES OF NEW BOOKS.

Nature Studies in Australia. By WM. GILLIES, M.A., and ROBT. HALL, C.M.Z.S., &c. Melbourne: Whitcombe & Tombs, Limited.

THIS is a truly bionomical book, and shows that Australian naturalists are also pursuing that observational method which may be described as "back to nature." The irony of the procedure, however, is that though the wholesome principle is enunciated that we should observe animals ourselves, rather than read about them in books, nearly every original observer publishes a book himself, so that the literature is more ample than ever. Still the number among us who can either see or think for themselves is, and must ever be, so minute, that we are thankful for such publications; to be independent of them would constitute the standard of a Darwin.

The method of the book is of the conversational style, somewhat recalling Dr. Johnson and the immortal Boswell; but one cannot read a page without meeting with a new suggestion, or the enunciation of little known facts. In our last issue (*ante*, p. 238), attention was drawn to a recent proposition that each breeding bird was occupier of a certain plot of ground. Our authors describe the same thing in Australia, where rival Cuckoos are seldom seen fighting. "They seem to have so arranged their areas of action as to map out all the Cuckoo-region systematically. In imagination you can pass from call to call all over this wide region of wood and pasture."

In concluding a notice of this interesting book, we must allude to the "Common Names of Australian Birds," which are given as appendix. The danger of these cognomens to any non-ornithological observer can well be appreciated by two citations:—

Crane (Blue) ...	... White-fronted Heron.
Heron (White-fronted)	... Blue Crane.

The Fauna of British India, including Ceylon and Burma. Edited by W. T. BLANFORD. Hymenoptera—Vol. II.—Ants and Cuckoo-Wasps, by Lieut.-Col. C. T. BINGHAM. Taylor & Francis.

DR. BLANFORD is to be congratulated on the steady issue of his volumes; of course no exact regularity can be maintained, but the series of volumes already issued are an important contribution to a knowledge of the fauna of British India. In an age when biology demands philosophical conclusions, these books play a prominent part, though they are as a rule purely technical. A species must be known and recognized before any accurate observation can be recorded about it, and therefore we must cheerfully labour as descriptive hodmen before that golden age arrives when the weary describer will be at rest, and remembered only as a worthy writer of necessary muniments.

Col. Bingham has made the Indian Hymenoptera a special study, and his book can therefore be received as authoritative. It is on this ground that we feel sorry to read that he is now leaving the Hymenoptera, about which so much is to be told, to write the account of the Indian butterflies, about which more is known. We trust, however, that he will complete both tasks.

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